CAG member responds to asbestos concern

MONTANAN MAY 22, 02

Dear Concerned grandmother:

Thank you for expressing your concerns to me. You expressed question in regard to whether or not there might be amphibole mineral fiber in the sidewalk dust and should you let your granddaughter sweep sidewalks in town. As a CAG [Community Advisory Group] member, it is my responsibility to act as a conduit of information exchange between EPA and the public, to the best of my ability.

First, I would have to say that you raise a valid concern. Is there fiber in sidewalk dust? I don't know and I don't know that EPA has done analysis of sidewalk dust, yet. Second, I will not advise you or anyone else as to whether to send your children out to sweep walks in town.

What I can do is provide you with information and observation that might help you to make an informed decision on your granddaughter's behalf. In an effort to reduce the stress which probably accompanies your concern, I will attempt to minimize the perceived health threat.

The soil on the sidewalk bordering U.S. Hwy. 2 as you described, is probably made up largely of materials used in road sanding and graveling from winter road maintenance activities. This dirt, sand and gravel probably comes from a source which is not contaminated with mineral fiber.

EPA, I believe, has performed aggressive air monitoring to assess traffic disturbance of fiber and came up with nothing. In two years of outside air monitoring at various locations around town, EPA has only detected fiber in the ambient air on one occasion in late summer of 2001.

That said and to validate your concern — there is evidence of widespread contamination in this valley of which the true extent has not yet been determined.

To help us better understand what is known, we need to understand that soil samples are currently being analyzed by use of Polarized Light Microscopy (PLM.) The significance is that soils that contain fiber concentration of less than 1 percent by mass are recorded as Trace or Non-Detect — Trace being the lowest detectable level using this analytical method. Only levels in soil greater than 1 percent by mass are recorded as full Detects. EPA's definition of Trace is: "Asbestos is present, but the amount is too low (less than about 1 percent asbestos by mass) to allow reliable quantification." From a memorandum written by EPA Senior Toxicologist Dr. Christopher Weis, Ph.D., DABT, dated 12-20-01, I quote: "of the total homes and commercial properties investigated, about 62 percent (162 out of 263) have detectable levels of asbestos present in one or more samples of an outdoor soil-like medium."

"These findings support the conclusion that multiple locations exist where asbestos levels in outdoor soil-like media may serve as an ongoing source of human exposure. Moreover, it is important to recognize that the PLM method has a relatively high detection limit for asbestos, and a Non-Detect by PLM is not equal to proof the sample is not contaminated with asbestos. To the contrary, other microscopic techniques (e.g., scanning electron microscopy) have shown that some soil samples that are below the limit of detection by PLM do contain high levels of asbestos fibers. The EPA is working to develop scanning electron microscopy and other related methods for analysis of fiber in soil, but the methods are not yet sufficiently refined to support quantitative estimates of fiber concentration."

Also of great importance in this report by Dr. Weis is that in regard to the sampling of yard soil, of 258 properties tested, 106 of these yards were recorded as Trace, meaning that asbestos is present, but at levels under 1 percent by mass and 13 had full Detects of 1 percent to 5 percent. These are yards, not garden spots! To provide better understanding of what all this means, I will describe an experiment that EPA conducted to determine how much exposure would come to a person rototilling a contaminated garden spot. The fiber concentrations in this garden were tested prior to this tilling experiment by the current soil analysis method (PLM) being used by EPA. Of six samples taken, four were Non-Detect and two were Trace amounts of less than 1 percent by mass of asbestos. In this experiment a person wore a respirator and a personal air monitor in the breathing zone. As confirmed by transmission electron microscopy, the person tilling would have been exposed to .066 fibers per cubic centimeter of air. Calculated into actual fiber numbers, this would mean 55,440 fibers inhaled per hour of tilling.

In short, this toxic mineral fiber is out there and it may take some time before we know to what extent. Is it possible for fibers to become airborne from contaminated properties and come to rest again a great distance away? Studies say yes. The toxicity of these Libby amphibole mineral fibers has not yet been determined, but studies indicate that some amphibole types may produce disease even at low levels of exposure. Is there amphibole fiber on our sidewalks and, if there is, how much? We, at least to my knowledge, don't know for sure. Please feel free to share this letter with others. Thank you for your concerns.

Clinton Maynard, Libby